

THE INVENTION CLAIMED IS

1. A system for denoising data utilizing parallel processors and wavelet denoising techniques, comprising:

a reading and displaying module for reading and displaying said data;

a partitioning and distributing module for partitioning said data into regions and distributing said regions onto said processors;

a communication requirements module for determining communication requirements among said processors;

a wavelet transforming module for wavelet transforming said data;

a thresholding wavelet coefficients module for thresholding wavelet coefficients of said wavelet transformed data;

an inverse wavelet transforming module for inverse wavelet transforming said data to obtain denoised data; and

a linking system for linking said reading and displaying module, said partitioning and distributing module, said communication requirements module; said wavelet transforming module, said thresholding wavelet coefficients module, and said inverse wavelet transforming module.

2. A method of denoising data utilizing parallel processors and wavelet denoising techniques, comprising the steps of:

reading and displaying said data in different formats;

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partitioning said data into regions and distributing said regions onto said processors;

determining communication requirements among said processors according to said wavelet denoising technique and said partitioning of said data;

transforming said data into different multiresolution levels with the wavelet transformed according to said wavelet denoising technique and using said communication requirements, said transformed data containing wavelet coefficients;

thresholding said wavelet coefficients according to said wavelet denoising techniques;

transforming said wavelet coefficients according to said wavelet denoising techniques; and

transforming the denoised data back into its original reading and displaying data format.

3. A method of denoising data utilizing parallel object-oriented processors and wavelet denoising techniques, comprising the steps of:

reading, writing, and displaying engineering, business and other data in different formats using a reading, writing, and displaying parallel object-oriented module;

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partitioning said data into regions and distributing said regions onto said parallel object-oriented processors using a partitioning and distributing parallel object-oriented module;

determining communication requirements among said parallel object-oriented processors according to said wavelet denoising technique and said partitioning of said data using a determining communication requirements parallel object-oriented module;

transforming said data onto different multiresolution levels with the forward wavelet transform according to said wavelet denoising technique and using said communication requirements using a data transforming parallel object-oriented module, said transformed data containing wavelet coefficients;

thresholding said wavelet coefficients according to said wavelet denoising technique requirements using a thresholding parallel object-oriented module;

transforming said thresholded wavelet coefficients using the inverse wavelet transform according to said wavelet denoising technique requirements using a transforming thresholded wavelet parallel object-oriented module, to obtain final denoised data; and

linking appropriate foregoing parallel object-oriented modules as necessary using a scripting language.

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4. A method of denoising data utilizing parallel object-oriented processors, comprising the steps of:

establishing an object-oriented library of denoising techniques based on thresholding of wavelet coefficients including a suite of different wavelet filters, wavelet transforms, boundary treatment rules, threshold calculation methods, threshold application functions, and noise estimation techniques;

using a data distribution algorithm for partitioning said data into contiguous rectilinear collections of regions;

configuring said parallel object-oriented processors according to the resulting partitioning;

choosing a specific wavelet denoising technique specified by a combination of, said wavelet filters, said boundary treatment rules, said threshold calculation methods, said threshold application methods, and said noise estimation methods from said object-oriented library of denoising techniques;

determining the communication requirements based on said partitioning, said parallel object-oriented processors, and said wavelet filters;

mapping said denoising technique onto said parallel object-oriented processors;

denoising said data on said parallel object-oriented processors according to said denoising technique, and

agglomerating the foregoing to obtain said denoised data.

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